

Attorney Docket No. 06618-505001
Appl. No. 09/491,353
Amtd. dated July 21, 2003
Reply to Office action of March 19, 2003

REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested.

The abstract stands objected to as being overly lengthy.

In response, a new abstract is provided herein.

Claims 1-2, 4-5, 9-10, 12-13, 17-18 and 20-21 stand rejected under 35 USC 102(b) as allegedly being anticipated by Groothuis. Claims 8, 16 and 24 stand rejected as being anticipated by Buchanan. Claims 3-11 and 19 stand rejected based on a combination of these two references. In response, the claims have been amended to emphasize their patentable distinctions.

Specifically, according to the newly amended claims, the phrase "subdivision surfaces" relates to a special technique that is used for generating smooth surfaces. The technique starts with a coarse mesh, and uses the subdivision surface framework in order to generate a smooth surface by recursively subdividing the mesh. The recursive subdivision provides improved smoothing as compared with the prior art.

Admittedly, Groothuis teaches subdividing a mesh. However, simply subdividing the mesh as taught by Groothuis does not lead to a sufficiently smooth surface, since even at the limit of

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infinite refinement, this discrete surface would remain faceted. While this reference does teach subdividing, it does not teach the special subdivision surfaces which are now emphasized by the claims.

This feature is important, since certain types of mechanical equations can only be approximated with smooth shape functions. Other types of shape functions as described by the prior art had facets at locations between the subdivisions. However, many finite elements, like a car hood or soda can not be adequately described by in this way.

In contrast, subdivision surfaces which are based on finite element analysis of the present type are recursively based on subdividing an initial mesh to smooth the surface. This is not taught by Buchanan. In the cited Buchanan reference, a "heterosis" element with lower continuity requirements is described.

Each of the claims have been amended along this line, and hence therefore each of these claims should be allowable for these reasons. Specifically, claim 1 has been amended to recite that the subdivision surface is iteratively subdivided.

Claim 9 has been amended to recite that the subdivision surfaces are iteratively formed to produce a smoothed surface. None of this is in any way taught or suggested by the cited

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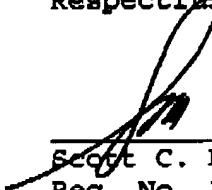
prior art. Analogous amendments have been made to the other claims, and hence each of these claims should be allowable for similar reasons.

In view of the above amendments and remarks, therefore, all of the claim should be in condition for allowance. A formal notice to that effect is respectfully solicited.

Please apply any other charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

Date: 7/8/03



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